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had already discovered connecting threads between the two components in *Cytisus Adami*, which Miss HUME confirmed. In *Solanum tubingense* she found them, while in the other *Solanum* she did not. These results show that genetically unrelated tissues can be joined by connecting threads, and the inference is that such threads do not arise from spindle fibers, since no nuclei of the two components have even been sisters.—J. M. C.

The embryo sac of Bellis.—The peculiar development of the antipodal region in some Compositae has long been known. In 1895 the reviewer[19] described an "antipodal oosphere" in *Aster novae-angliae*, and nearly ten years later Miss OPPERMAN[20] not only found an antipodal oosphere in *Aster undulatus*, but noted its fertilization. Recently, CARANO[21] has described a "pseudo-oosphere" in the antipodal region of *Bellis perennis*. In all these cases, the region in which the abnormal oosphere is found is greatly enlarged; in fact, it has the appearance of an embryo sac. Doubtless the conditions in the enlarged antipodal cell are about the same as in a normal embryo sac, and consequently the occasional organization of an oosphere is not so strange as we formerly supposed.—CHARLES J. CHAMBERLAIN.

Reproduction in gymnosperms and angiosperms.—Under this title ERNST[22] gives an excellent résumé of the present status of the subject. The illustrations, which are taken from the leading contributions, are well reproduced. The bibliographies are in two categories: those which treat the subject in a general way, like textbooks, and those which deal with original investigation. The title, *Hand dictionary of the sciences*, is somewhat misleading for English-speaking people, for this "dictionary" is more like an encyclopedia, consisting of several volumes, edited by a staff of specialists. OLTMANNS is the general editor of botany, and he has distributed the various topics to specialists in the various fields. All articles, like the one just mentioned, are signed.—CHARLES J. CHAMBERLAIN.

Mitosis in Oenothera.—In the somatic divisions of *Oenothera lata* GATES[23] finds the chromosomes forming from the delicate reticulum by the parallel fusion of several strands. No prochromosomes are present, and no continuous spirem is formed. The splitting of the chromosomes occurs in late prophase, but the split disappears temporarily before the metaphase, when it is again evident. During late prophase and metaphase the chromosomes often show a distinctly paired arrangement. In telophase there is a massing at each pole, after which the chromosomes separate and become joined by anastomoses. Considerable variation in chromosome number is shown; the usual number is 15. The nuclei occasionally show certain characters of heterotypic mitosis.—L. W. SHARP.

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[19] CHAMBERLAIN, CHARLES J., The embryo sac of *Aster novae-angliae*. BOT. GAZ. **20**:205–212. *pls. 15, 16.* 1895.

[20] OPPERMAN, MARIE, A contribution to the life history of *Aster*. BOT. GAZ. **37**:353–362. *pls. 14, 15.* 1904.

[21] CARANO, ENRICO, Su particolari anomalie del sacco embrionale di *Bellis perennis*. Annali di Botanica **11**:435–439. *pl. 9.* 1913.

[22] ERNST, A., Fortpflanzung der Gymnospermen und Angiospermen. Abdruck aus Handwörterbuch der Naturwissenschaften **4**:227–261. *figs. 37.* 1913.

[23] GATES, R. R., Somatic mitosis in *Oenothera*. Ann. Botany **26**:993–1010. *pl. 86.* 1912.

Poison weed.—Larkspurs have always had the reputation of being poisonous, but it seems that only in North America have they been important in causing losses of stock. MARSH and his associates[24] have investigated the poisoning due to larkspur in Colorado, and presumably the conditions are the same in other mountain cattle ranges of the West. The larkspurs are grouped as tall and low larkspurs, *Delphinium Barbeyi* representing the first group, and *D. Nelsonii* the latter. These forms cause the loss of a great number of cattle, but horses and sheep are not injured by grazing on larkspur areas; and cattle are not injured if prevented from grazing on such areas until the second week of July. The next problem is to discover the specific poison.—J. M. C.

Xenia.—Having discovered instances of xenia in wheat, BLARINGHEM[25] sought to determine whether the vigorous development of hybrid enbryo and endosperm ever causes a change in the character of the maternal tissue that surrounds them. On crossing a comparatively small wheat, known as *Triticum turgidum gentile* Al. var. Normandy, with a larger type, *Triticum vulgare lutescens* hybrid no. 126 of the Hohenheim collection, 16 hybrid seeds approaching the paternal variety in size were obtained. This phenomenon is interpreted as xenia in the original sense of the term, though it seems probable that it is simply a stretching of the pericarp due to a large hybrid embryo and endosperm.—E. M. EAST.

Artificial cell structure.—In a series of interesting experiments, W. MAGNUS[26] has produced, from paraffin, beeswax, and other substances, various structures which bear a striking resemblance to cells and tissues. The paraffin, with a melting point of about 74° C., was poured upon mercury which had been heated to 78° C. and allowed to cool at room temperature. While this is only the beginning of the investigation, the writer thinks he has already shown that through the action of purely physical forces structures can be produced which look like

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[24] MARSH, C. DWIGHT, CLAWSON, A. B., and MARSH, HADLEIGH, Larkspur or "poison weed." U.S. Dept. Agric., Bur. Plant Ind., Farmer's Bull. 531. 1913.

[25] BLARINGHEM, L., L'influence du pollen visible sur l'organisme maternal; découverte de la xénie chez le blé. Bull. Soc. Bot. France **60**:187–193. 1913.

[26] MAGNUS, WERNER, Über zellenformige Selbstdifferenzierung aus flüssiger Materie. Ber. Deutsch. Bot. Gesells. **31**:290–303. *pl. 13.* 1913.